

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P909127

Luminaire Tested: DFN2DIP-SQ3F0-050D090US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909127
REPORT IS A COMBINATION OF REPORTS P901474 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-050D090US840-RLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

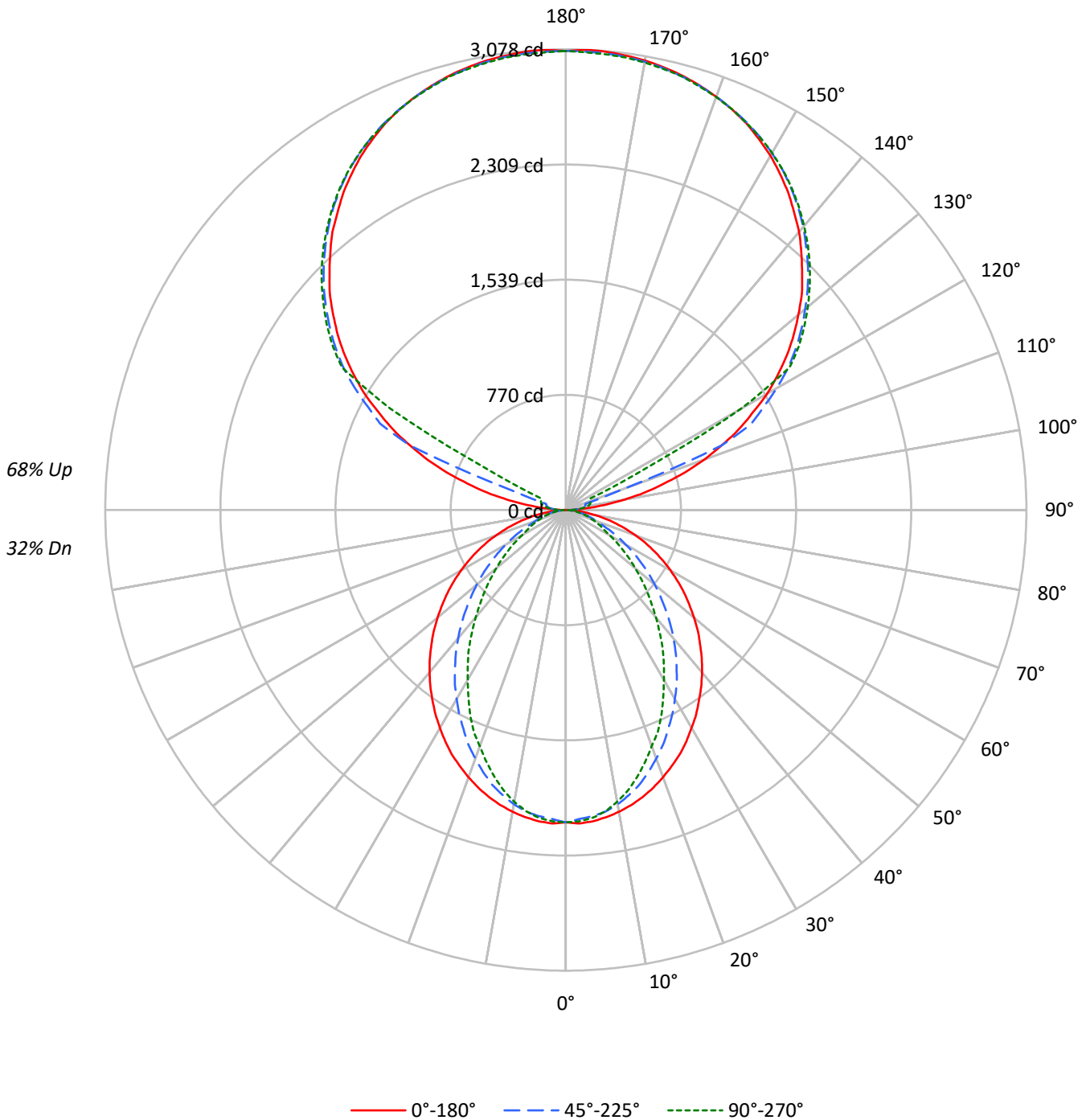
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13289.8 lumens
Efficiency: N/A
Efficacy: 120.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 110.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40	40	40	40	32
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34	36	35	34	28
2	86	79	73	68	77	71	66	62	57	54	51	44	42	40	32	30	29	32	30	29	24
3	79	70	63	57	71	63	57	52	51	46	43	39	36	34	28	27	25	28	27	25	21
4	72	62	54	49	65	56	50	45	45	40	37	35	32	29	26	24	22	26	24	22	18
5	66	55	47	42	59	50	43	38	40	36	32	32	28	26	23	21	19	23	21	19	16
6	61	49	42	36	55	45	38	33	36	32	28	29	25	22	21	19	17	21	19	17	14
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	19	17	15	19	17	15	13
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	16	14	18	16	14	11
9	49	37	30	25	44	34	27	23	28	23	20	22	18	16	16	14	13	16	14	13	10
10	45	34	27	22	41	31	25	21	25	21	18	20	17	14	15	13	11	15	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2391	2391	2391
5°	2393	2352	2368
10°	2368	2304	2290
15°	2334	2226	2170
20°	2290	2120	2023
25°	2244	2001	1881
30°	2183	1879	1702
35°	2123	1748	1544
40°	2062	1612	1364
45°	1992	1463	1200
50°	1918	1312	1040
55°	1842	1150	887
60°	1753	982	729
65°	1651	811	656
70°	1527	651	592
75°	1371	571	537
80°	1146	474	463
85°	778	309	344

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2100 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	195.6	1.5
10°-20°	536.9	4.0
20°-30°	753.8	5.7
30°-40°	821.7	6.2
40°-50°	755.2	5.7
50°-60°	593.1	4.5
60°-70°	386.1	2.9
70°-80°	198.7	1.5
80°-90°	56.1	0.4
90°-100°	101.2	0.8
100°-110°	377.0	2.8
110°-120°	1000.0	7.5
120°-130°	1658.6	12.5
130°-140°	1761.8	13.3
140°-150°	1637.4	12.3
150°-160°	1316.4	9.9
160°-170°	848.2	6.4
170°-180°	292.0	2.2
0°-30°	1486.3	11.2
0°-40°	2308.0	17.4
0°-60°	3656.4	27.5
0°-90°	4297.3	32.3
90°-120°	1478.2	11.1
90°-150°	6535.9	49.2
90°-180°	8992.0	67.7
0°-180°	13289.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2087	2087	2087	2087	2087	
5°	2087	2078	2053	2070	2064	198
15°	1985	1964	1900	1864	1845	559
25°	1802	1741	1617	1539	1511	829
35°	1552	1456	1290	1171	1129	972
45°	1269	1143	944	810	765	980
55°	965	818	614	500	465	862
65°	652	499	329	264	259	646
75°	348	215	151	138	136	368
85°	81	42	36	36	36	93
90°	2	27	44	56	60	12
95°	144	71	86	98	95	171
105°	675	741	135	160	169	721
115°	1276	1314	1370	342	182	1256
125°	1804	1833	1876	1891	1898	1609
135°	2233	2268	2288	2311	2306	1725
145°	2590	2588	2626	2641	2630	1620
155°	2852	2832	2859	2872	2854	1314
165°	3005	2992	2999	3014	2999	849
175°	3074	3058	3063	3078	3056	293
180°	3067	3067	3067	3067	3067	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2086.9	2086.9	2086.9	2086.9	2086.9
2.5°	2096.3	2086.9	2066.1	2085.1	2081.2
5°	2086.9	2077.5	2052.9	2069.8	2064.3
7.5°	2069.8	2058.6	2032.2	2039.6	2030.1
10°	2047.2	2034.0	1996.3	1990.5	1979.2
12.5°	2018.9	2002.0	1950.9	1939.6	1918.7
15°	1984.9	1964.1	1900.0	1864.1	1845.2
17.5°	1945.2	1915.0	1835.6	1794.1	1763.8
20°	1900.0	1862.1	1767.7	1720.6	1678.9
22.5°	1850.9	1807.4	1697.8	1633.7	1605.4
25°	1801.7	1741.2	1616.6	1539.2	1510.8
27.5°	1743.2	1678.9	1541.1	1452.3	1408.9
30°	1680.9	1609.0	1457.9	1361.7	1310.6
32.5°	1620.4	1533.5	1378.8	1265.4	1218.1
35°	1552.5	1456.1	1290.0	1170.9	1129.3
37.5°	1486.3	1382.4	1206.9	1076.4	1029.4
40°	1416.4	1303.2	1119.8	985.8	936.8
42.5°	1344.7	1223.9	1033.1	893.2	846.2
45°	1269.2	1142.6	944.3	810.1	764.8
47.5°	1197.4	1063.4	859.4	725.2	683.7
50°	1118.1	984.0	776.3	645.8	606.3
52.5°	1040.6	898.9	696.9	572.3	536.4
55°	965.0	817.7	613.7	500.5	464.6
57.5°	887.7	736.6	540.2	434.4	404.1
60°	808.3	657.2	462.6	366.5	336.2
62.5°	730.9	579.9	396.6	306.0	290.9
65°	651.6	498.6	328.6	264.5	258.7
67.5°	576.0	423.0	264.5	232.3	226.6
70°	496.8	349.4	219.0	200.2	192.6
72.5°	421.2	281.3	183.2	168.1	164.3
75°	347.5	215.2	151.1	137.8	136.0
77.5°	273.9	152.9	119.1	111.4	107.6
80°	205.8	109.6	90.6	83.1	83.1
82.5°	143.5	73.7	62.3	58.5	58.5
85°	81.2	41.5	35.9	35.9	35.9
87.5°	30.3	15.0	15.0	13.2	13.2
90°	2.1	26.7	44.2	55.6	59.8
92.5°	55.6	46.7	53.2	57.8	59.8
95°	144.2	70.9	86.4	97.8	95.4
97.5°	259.6	77.8	113.1	119.9	122.0
100°	392.9	88.9	126.5	144.2	148.7
102.5°	539.3	535.0	131.0	155.2	162.1
105°	674.7	741.4	135.4	159.8	168.6
107.5°	832.3	887.7	140.0	164.2	173.2
110°	983.3	1029.8	388.5	166.5	175.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1125.4	1165.2	1127.5	170.8	177.6
115°	1276.2	1313.8	1369.5	341.8	182.1
117.5°	1407.1	1451.5	1489.3	1171.8	590.4
120°	1553.7	1586.9	1627.0	1653.6	1353.9
122.5°	1677.9	1713.4	1758.0	1771.1	1773.5
125°	1804.3	1833.3	1875.5	1891.1	1897.6
127.5°	1919.8	1950.9	1984.4	2006.5	2008.6
130°	2028.6	2064.3	2088.5	2112.9	2110.9
132.5°	2139.6	2168.6	2192.8	2212.9	2210.8
135°	2232.9	2268.5	2288.3	2310.7	2306.2
137.5°	2330.5	2357.0	2379.4	2401.6	2395.0
140°	2425.8	2443.8	2468.0	2488.0	2477.0
142.5°	2506.0	2521.5	2550.2	2567.9	2556.9
145°	2590.3	2587.9	2625.7	2641.2	2630.1
147.5°	2663.3	2656.8	2694.4	2705.5	2696.7
150°	2734.5	2719.0	2754.5	2767.6	2756.6
152.5°	2794.3	2776.6	2809.8	2823.3	2807.7
155°	2852.1	2832.3	2858.8	2872.1	2854.4
157.5°	2898.7	2881.0	2901.0	2916.6	2898.7
160°	2938.7	2925.3	2938.7	2951.9	2936.4
162.5°	2974.1	2960.8	2971.9	2987.5	2967.5
165°	3005.2	2991.9	2998.6	3014.1	2998.6
167.5°	3029.7	3016.3	3023.0	3038.6	3018.6
170°	3049.7	3036.3	3040.7	3056.3	3036.3
172.5°	3062.9	3049.7	3054.1	3069.7	3049.7
175°	3073.9	3058.4	3062.9	3078.4	3056.3
177.5°	3078.4	3062.9	3065.2	3080.8	3060.8
180°	3067.4	3067.4	3067.4	3067.4	3067.4



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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	8.22	8.93	9.32	10.02	11.52	4.18	4.89	5.28	5.98	7.48
	3H	9.88	10.51	10.99	11.62	13.14	5.35	5.98	6.46	7.09	8.61
	4H	10.48	11.08	11.60	12.18	13.71	5.79	6.39	6.91	7.49	9.02
	6H	10.90	11.44	12.02	12.55	14.09	6.10	6.65	7.23	7.76	9.30
	8H	11.02	11.54	12.15	12.66	14.19	6.19	6.71	7.32	7.83	9.36
	12H	11.07	11.57	12.21	12.68	14.24	6.22	6.72	7.36	7.83	9.39
4H	2H	8.22	8.82	9.35	9.92	11.45	4.76	5.36	5.89	6.46	7.99
	3H	10.03	10.53	11.17	11.66	13.20	6.09	6.59	7.22	7.72	9.26
	4H	10.72	11.17	11.85	12.29	13.85	6.63	7.08	7.76	8.20	9.76
	6H	11.22	11.61	12.36	12.75	14.31	7.03	7.42	8.18	8.57	10.12
	8H	11.39	11.76	12.53	12.89	14.46	7.16	7.52	8.30	8.65	10.22
	12H	11.48	11.81	12.64	12.95	14.53	7.21	7.54	8.37	8.69	10.26
8H	4H	10.67	11.04	11.82	12.17	13.74	6.90	7.26	8.04	8.39	9.96
	6H	11.23	11.53	12.39	12.71	14.27	7.40	7.70	8.56	8.88	10.44
	8H	11.44	11.71	12.61	12.86	14.45	7.59	7.85	8.75	9.00	10.59
	12H	11.57	11.80	12.74	12.96	14.58	7.69	7.93	8.87	9.08	10.70
12H	4H	10.62	10.95	11.78	12.10	13.67	6.89	7.22	8.05	8.37	9.94
	6H	11.21	11.47	12.37	12.62	14.21	7.45	7.71	8.62	8.87	10.45
	8H	11.42	11.65	12.59	12.80	14.42	7.65	7.88	8.82	9.03	10.65